

Claims

[c1] A method of positioning a sensor in an electric motor including a rotor assembly, a stator assembly including a stator end cap, and a sensor assembly, the sensor assembly including a housing surrounding a sensor and including a plurality of guides, said method comprising the step of attaching the sensor housing to the stator end cap by positioning a first pair of housing guides in contact with a first side of the stator end cap and a second pair of housing guides in contact with a second side of the stator end cap.

[c2] A method in accordance with Claim 1 wherein the stator end cap includes a pair of first notches and a pair of second notches separated by a bridge, said method further comprising the step of positioning the second pair of housing guides within the pair of first notches.

[c3] A method in accordance with Claim 2 wherein an outer surface of the bridge is flush with an outer surface of the first stator end cap, said method further comprising the step of sliding the sensor assembly such that the pair of second housing guides slides over the bridge.

[c4] A method in accordance with Claim 2 wherein a step extends between the bridge and the second notch, said method further comprising the step of sliding the sensor assembly such that the pair of second housing guides nests within the second pair of notches and fits adjacent the step.

[c5] A method in accordance with Claim 4 wherein the housing guides are fabricated from flexible material, said method further comprising the step of sliding the sensor assembly such that the pair of second housing guides slides into the second pair of notches and flexes to contact an inner surface of the second pair of notches and the step.

[c6] A method in accordance with Claim 1 wherein the stator assembly further includes a plurality of stator laminations, said method further comprising the step of sliding the sensor assembly until at least a portion of the second pair

of housing guides contacts the stator laminations.

[c7] A method in accordance with Claim 1 wherein the stator assembly further includes a plurality of stator laminations having an edge with a step, said method further comprising the step of sliding the sensor assembly until at least a portion of the second pair of housing guides contacts the step.

[c8] A method in accordance with Claim 1 further comprising the step of flexing the sensor housing over a locking section of the stator end cap.

[c9] A method in accordance with Claim 1 further comprising the step of preventing sensor housing movement in at least one of a radial and an axial direction.

[c10] A method in accordance with Claim 1 further comprising the step of locking the sensor in a desired position with respect to the rotor.

[c11] A stator assembly for an electric motor, said assembly comprising:
a plurality of stator laminations comprising a plurality of sections separated by a plurality of first gaps, each of the first gaps defined by a first pair of edges;
a first stator end cap attached to said stator laminations and comprising a plurality of sections comprising a plurality of edges, said sections separated by a plurality of second gaps, each of the second gaps defined by a pair of said first stator end cap section edges, said first stator end cap further comprising a pair of first notches extending from a first end of said first stator end cap at one pair of said first stator end cap section edges; and
a second stator end cap attached to said stator laminations and comprising a plurality of sections separated by a plurality of third gaps, each third gap defined by a third pair of edges.

[c12] A stator assembly in accordance with Claim 11 wherein said first stator end cap further comprises a bridge adjacent said first pair of notches.

[c13] A stator assembly in accordance with Claim 12 wherein said first stator end

cap comprises an outer surface, said first pair of notches extend at an angle from an inner first stator end cap portion at said first end to an outer surface at said bridge.

[c14] A stator assembly in accordance with Claim 13 wherein said bridge is flush with said outer surface.

[c15] A stator assembly in accordance with Claim 13 wherein said first stator end cap further comprises a second notch extending from said bridge to said stator laminations.

[c16] A stator assembly in accordance with Claim 15 wherein said first stator end cap further comprises a step extending between said second notch and said bridge.

[c17] A stator assembly in accordance with Claim 15 wherein said second notch increases in depth from said bridge to said stator laminations.

[c18] A stator assembly in accordance with Claim 15 wherein said second notch is wider at said stator laminations than at said bridge.

[c19] A rotor position sensor mounting system comprising:
a plurality of stator laminations comprising a plurality of sections separated by a plurality of first gaps, each of the first gaps defined by a first pair of edges;
a first stator end cap attached to said stator laminations and comprising a plurality of sections comprising a plurality of edges, said sections separated by a plurality of second gaps, each of the second gaps defined by a pair of said first stator end cap section edges, said first stator end cap further comprising a pair of first notches extending from a first end of said first stator end cap at one pair of said first stator end cap section edges;
a second stator end cap attached to said stator laminations and comprising a plurality of sections separated by a plurality of third gaps, each of the third gaps defined by a third pair of edges; and
a sensor assembly configured to fixedly engage said first stator end cap.

[c20] An assembly in accordance with Claim 19 wherein said notches extend at an angle from an inner portion of said first stator end cap to an outer surface of said first stator end cap.

[c21] An assembly in accordance with Claim 19 wherein said first stator end cap comprises a pair of bridges, said first notches extending from said first stator end cap first side to said bridge.

[c22] An assembly in accordance with Claim 19 wherein said first stator end cap further comprises a pair of second notches, each said second notch extending along one of said notched edges.

[c23] An assembly in accordance with Claim 22 wherein said first stator end cap further comprises a step extending between said second notches and an outer surface of said first stator end cap.

[c24] An assembly in accordance with Claim 21 wherein said first stator end cap further comprises a pair of second notches, each said notch extending from one of said bridges to said stator laminations.